ONTARIO MINISTRY OF ENVIRONMENT
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THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

OF THE

TOWNSHIP OF MUSKOKA

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Report on a water pollution survey of the township of Muskoka.

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ONTARIO WATER RESOURCES COMMISSION

REPORT

on

WATER POLLUTION SURVEY

of

THE TOWNSHIP OF MUSKOKA

Division of Sanitary Engineering

July 1964

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REPORT

ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

The purpose of this survey was to locate and record all significant sources of water pollution within the Township of Muskoka. Surveys of this nature are conducted routinely and upon request throughout the Province of Ontario by the Ontario Water Resources Commission as a basis for evaluating any existing or potential sources of pollution.

Recommendations are made pertaining to water pollution abatement and the Commission expects that corrective measures will be taken by those concerned.

GENERAL INFORMATION

The Township of Muskoka in the District of Muskoka is located in the area abutting the southern part of Lake Muskoka. The resident population is approximately 1500, however the number of inhabitants increases during the summer months of July and August to approximately 50,000. The area of the township is about 49,700 acres. There are a number of smaller lakes aside from Lake Muskoka and the lakefront lots available have been for the most part developed with cottage settlements.

WATER SUPPLY

The municipality has no municipal water supply. Reportedly, the residents of summer homes in this area depend mainly on surface waters as drinking water supplies. Routine

inspections are effected by the OWRC of the major private water works systems and individual reports are prepared.

Comments

It is suggested that where water is being taken from a surface water supply for human consumption, a minimum treatment of chlorination should be provided. Surface water supplies should receive this treatment to safeguard the users against the possibility of drinking water which is unfit for human consumption.

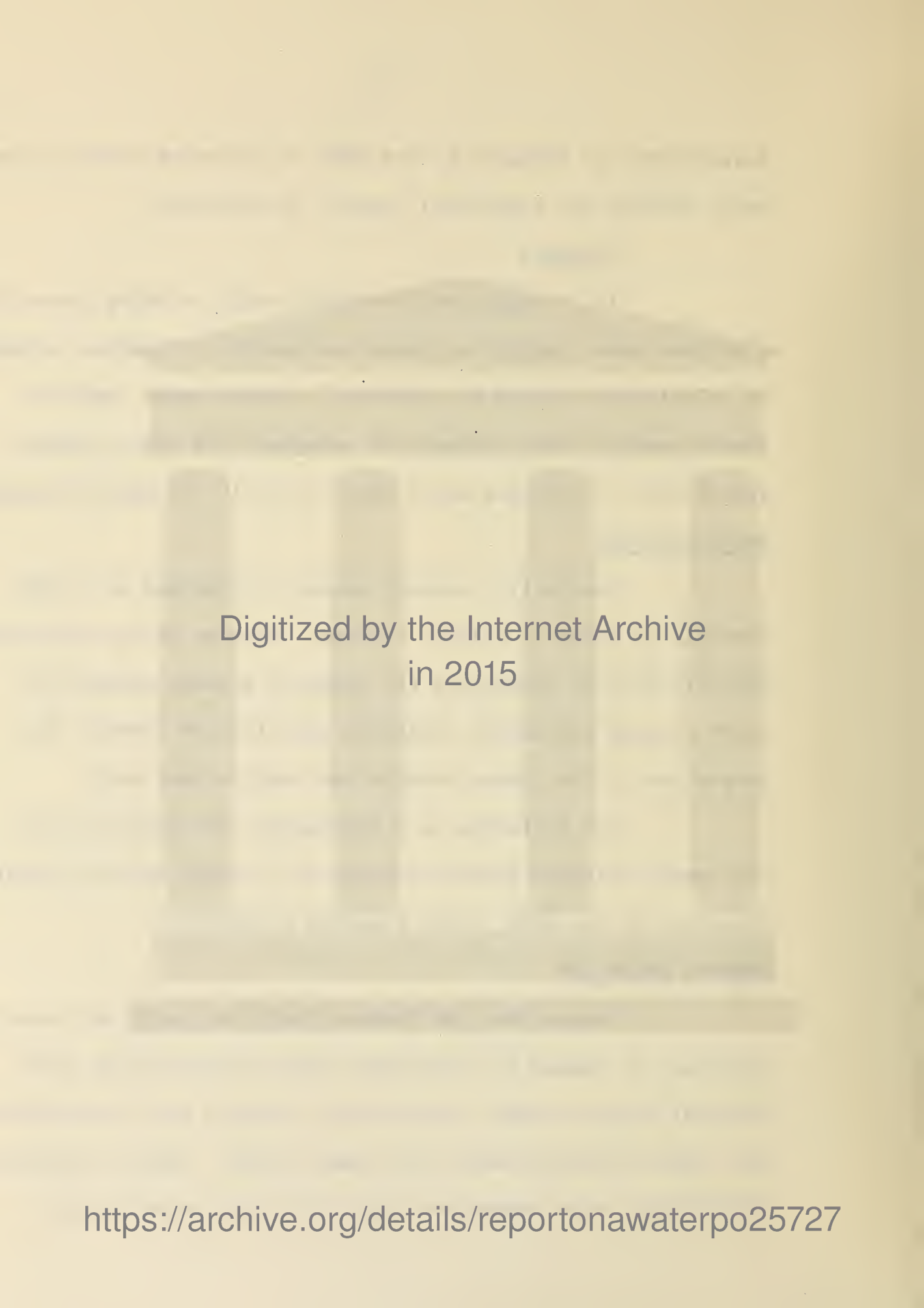
WASTE DISPOSAL

Generally, sanitary sewage is disposed of in the township by means of private systems. Because of the physical impossibility of inspecting the disposal systems employed at every cottage particular attention was directed towards the inspection of the larger resorts and institutions only.

The following is a description and evaluation of the sewage disposal systems serving the resorts and institutions inspected by the OWRC in the Township of Muskoka.

MUSKOKA SANDS INN

Sewage from the Muskoka Sands Inn lodge and associated buildings is pumped to a two-stage waste stabilization pond. The original design of this installation intended total retention of the lagoon contents during the summer month. However, operating difficulties were encountered when the level control gates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were not placed correctly. As a consequence, effluent from the second lagoon was being discharged to a creek. The creek flows to Lake Muskoka.

The banks of the lagoons have not been sodded and as a result erosion was taking place.

Total retention of the sewage until the termination of the summer recreational season should be effected at this resort. If under normal operation a discharge from the lagoons to the creek is required during the summer months, chlorination of the final effluent should be performed. This additional treatment would be required to ensure the safety of the recreational area located near the point at which the creek containing the lagoon effluent discharges to Lake Muskoka. In addition, the Inn takes water from this area and an unchlorinated discharge could adversely affect the quality of the water.

A final effluent sample was collected for bacteriological examination and chemical analysis on June 24, 1964. The bacteriological examination indicated a count of 29,000 coliforms per 100 millilitres.

The chemical analysis showed the final effluent BOD and suspended solids content to be 92 ppm and 244 ppm, respectively, which is unsatisfactory. These values are in excess of the OWRC maximum objective of not greater than 15 ppm for BOD and suspended solids in a waste discharge to a watercourse.

ONTARIO FIRE COLLEGE

Sewage from this institution is discharged to a modified septic tank and subsurface tile field. An inspection of this system indicated that the system had no discharge to Lake Muskoka. The operation appeared to be satisfactory.

BEAVER CREEK CORRECTION CAMP

The Beaver Creek Correction Camp is located immediately east of the District of Muskoka Airport and is served by the airport access road. The total population of the camp is 100.

The water supply is a single well. The reported water consumption is between 8,000 and 10,000 gallons per day. No treatment is provided.

At the present, the sewage is disposed of in a septic tank and tile field system. Difficulties encountered in obtaining a satisfactorily operating weeping tile field have resulted in considering a waste water stabilization pond as a means of treatment.

Reportedly, it is proposed to construct a one-acre waste water stabilization pond approximately 1,200 feet distant from the camp. The effluent would be discharged to Beaver Creek. Beaver Creek joins with the Hawkrock River which flows to Lake Muskoka.

An inspection of the proposed site indicated that the lagoon is to be located in a low swampy area adjacent to the receiving stream. It was suggested that the lagoon should be located above the high water table.

THE ELMS TOURIST RESORT

This resort is located east of Highway No.69 on the south side of Parker's Point Road. Water is obtained from Lake Muskoka, chlorinated, and without further treatment pumped to the distribution system. Sanitary sewage is discharged to septic tanks and tile fields. The inspection of these installations indicated that the operation was satisfactory at this time.

ONTARIO HOSPITAL SCHOOL

Sanitary sewage from the hospital is discharged to a conventional activated sludge plant. Final effluent chlorination treatment is provided. No provision has been made for grit removal. The plant is severely overloaded. Samples were collected from the final effluent for bacteriological examination and chemical analysis. The bacterial examination indicated the presence of 2.6 million coliform organisms per 100 millilitres.

The chemical analysis showed a BOD and suspended solids of 125 ppm and 60 ppm respectively, which is in excess

of the Commission's maximum allowable concentration limits of 15 ppm for both BOD and suspended solids.

Reportedly, consideration has been given to the installation of a package type activated sludge plant of sufficient capacity to treat the waste flows. The necessary action should be taken forthwith to improve the final effluent quality.

BRACEBRIDGE WASTE STABILIZATION PONDS

Raw sewage from the town is pumped by means of two sewage pumping stations to a two-cell lagoon located south of Bracebridge and west of Highway No.532 in the Township of Muskoka. This sewage treatment plant is an OWRC project and is operated by the Division of Plant Operations of this Commission.

Final effluent samples were collected from these lagoons for bacteriological examination and chemical analysis on May 7, 1964. The bacterial examination showed zero coliforms organisms per 100 ml. The chemical analysis indicated the following:

	BOD	S.S.
West lagoon effluent	20	78
East lagoon effluent	28	52

The BOD and suspended solids of the final effluent from both lagoons were in excess of the Commission's maximum objective of not greater than 15 ppm for both values.

REFUSE DISPOSAL AREAS

Municipal

The Township of Muskoka does not operate a refuse disposal. Reportedly, an arrangement with the Town of Gravenhurst allows the residents of this township to dispose of garbage at the Gravenhurst dump.

Ontario Hospital School

The hospital operates a refuse disposal area for dry garbage only. This dump is located on the hospital property adjacent to a tributary of Lake Muskoka. The operation of this refuse disposal area has been unsatisfactory, resulting in polluting material gaining access to the watercourse. The OWRC suggested in a report on July 24, 1964, that the necessary corrective action should be taken to eliminate this water impairment problem. Reportedly, the Ontario Hospital School have considered this problem with the result that work will begin forthwith on the construction of an impervious retaining wall. This together with the discriminate dumping of refuse in this area should assure adequate protection of this watercourse.

INDUSTRIAL WASTES

It is understood that the only industry in this municipality with a water pollution problem is the Bracebridge Latex Division of Bethel Latex Products, which is located south of Bracebridge on Highway No.532. In April of 1963, this

Commission made an investigation of this industry and found it discharging industrial wastes to a watercourse. Reportedly, this condition was to be corrected by the installation of a septic tank and tile field. No further complaints have been received.

OWRC WATER QUALITY OBJECTIVES

The following objectives are for all waters in the Province of Ontario:

Item	Concentration
5-day BOD	not greater than 4 ppm
MF Coliform Count	not greater than 2,400 coliforms per 100 ml
Phenol- average	not greater than 2 ppb
maximum	not greater than 5 ppb
pH -	6.7-8.5

Adequate protection for these waters, except in certain specific instances influenced by local conditions, should be provided if the following waste discharge concentrations are obtained:

Item	Concentration
5-day BOD	not greater than 15 ppm
Suspended Solids	not greater than 15 ppm
Phenol	not greater than 20 ppb
pH	5.5-10.6
Iron	not greater than 17 ppm
Oil	not greater than 15 ppm

DISCUSSION OF LABORATORY RESULTS

Samples collected from Muskoka Bay for bacteriological examination indicated that the water was of satisfactory quality for recreational use.

The laboratory results of samples collected from the sewage treatment plants serving the Muskoka Sands Inn, the Ontario Hospital School and the Town of Bracebridge have been discussed briefly in this report. Detailed reports have been prepared on these plants and directed towards the individuals concerned.

SUMMARY & CONCLUSIONS

A water pollution survey of the Township of Muskoka was made on July 17, 1964. The resorts and institutions in this township were visited and samples were collected for bacteriological examination and chemical analyses.

There are water impairment problems in the municipality that should be eliminated. Reports have been prepared by the OWRC and sent to the individuals concerned requesting that remedial action be taken to correct the pollution problems.

Most resorts and institutions visited were found to have no waste disposal problems. However, the final effluent discharged from the sewage treatment plants serving the Muskoka Sands Inn and Ontario Hospital was of unsatisfactory quality.

The importance of maintaining the quality of water in this area in order that it is suitable for recreational use

is essential in retaining the tourist trade. Therefore, it is suggested that a water pollution control programme should receive the consideration of all municipal officials and residents of this municipality. Foremost, the programme should include the reporting of known faulty sewage disposal facilities to the Muskoka District Health Unit and/or this Commission.

RECOMMENDATIONS

1. No effluent should be discharged from the Muskoka Sands Inn sewage treatment plant during the summer months.

2. Since the Ontario Hospital has initiated the remedial action necessary to improve its sewage treatment facilities no recommendations will be made at this time.

All of which is respectfully submitted,

District Engineer: H. Browne
H.Browne

Approved by: K. H. Sharpe
K.H.Sharpe, Director

Prepared by: D.A.Murray Wilson

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TABLE I

LAKE MUSKOKA

Sample Point No.	Location	MF Coliform Count per 100 ml 1964
MU-1	Gravenhurst Wharf area	48
1A	Vicinity of Creek outlet from Gravenhurst S.T.P.	36
2	Gravenhurst area	16
3	Ontario Hospital School-Gravenhurst(off water works)	14
3A	Ontario Hospital School-Gravenhurst(off S.T.P.)	20
4	Lighthouse Narrows area	34
5	Muskoka Beach area (Muskoka Sands Beach area)	4
6	Ennis Bay (Beach area)	16
7	Stephens Bay (Beach area)	24
8	Off St.Elmo	18
25A	The Ark Marina	28
26	Campbell's Landing	26

TABLE II

All analyses except pH reported in ppm unless otherwise indicated

Location	Date Examined	Coliforms/100ml MF	5-day BOD	Solids Total	Solids Susp.	Solids Diss.
Township of Muskoka Muskoka Sands Inn sewage treatment plant	June 24/64	29,000	92	560	244	316
Ontario Hospital sewage treatment plant	June 25/64	2,600,000	125	338	60	278
	Dec.5/63	15,000,000	170	284	91	193
	Dec.5/63	150,000				
	Aug.21/64	620,000	140	326	75	251
Bracebridge OWRC sewage treatment plant - west lagoon effluent	May 7/64	0	20	272	78	194
east lagoon effluent	May 4/64	0	28	218	52	166
Creek containing Muskoka Sands Inn sewage treatment plant effluent	July 17/64	0	37	432	8	424

ONTARIO WATER RESOURCES COMMISSION
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